

AMENDMENTS TO THE CLAIMS

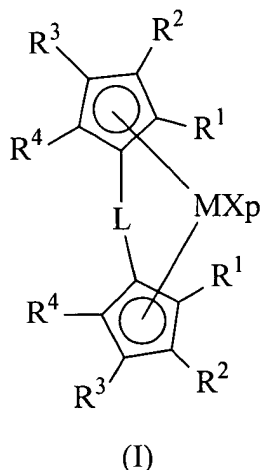
1. (currently amended) A process for obtaining porous propylene polymers optionally containing up to 10% by mol of derived units of at least one alpha-olefin of formula $\text{CH}_2=\text{CHZ}$ wherein Z is H or a $\text{C}_2\text{-C}_{10}$ alkyl radical, comprising the step of polymerizing, in a polymerization medium, propylene and optionally said at least one alpha-olefin, under polymerization conditions, in the presence of a catalyst system comprising at least a metallocene compound wherein:
 - a) the catalyst system is supported on an organic porous polymer; and
 - b) at least part of the polymerization reaction is carried out in the presence of hydrogen,

wherein the organic porous polymer support has porosity due to pores with diameter up to $10\text{ }\mu\text{m}$ ($100000\text{ }\text{\AA}$) higher than 0.1 cc/g .
2. (previously presented) The process according to claim 1 wherein the polymerization medium is liquid propylene optionally containing minor amounts of an inert hydrocarbon solvent or at least one comonomer of formula $\text{CH}_2=\text{CHZ}$.
3. (currently amended) A process for obtaining a porous propylene polymer optionally containing up to 10% by mol of derived units of at least one alpha-olefin of formula $\text{CH}_2=\text{CHZ}$ wherein Z is H or a $\text{C}_2\text{-C}_{10}$ alkyl radical, comprising the following steps:
 - a) prepolymerizing in a first polymerization medium propylene optionally with at least one alpha-olefin of formula $\text{CH}_2=\text{CHZ}$ wherein Z is H or a $\text{C}_2\text{-C}_{10}$ alkyl radical in the presence of a catalyst system supported on an organic porous polymer, said catalyst comprising a metallocene compound; wherein the first polymerization medium is liquid propylene,

wherein the organic porous polymer support has porosity due to pores with diameter up to $10\text{ }\mu\text{m}$ ($100000\text{ }\text{\AA}$) higher than 0.1 cc/g ; and
 - b) contacting propylene and optionally at least one alpha-olefin of formula $\text{CH}_2=\text{CHZ}$ wherein Z is H or a $\text{C}_2\text{-C}_{10}$ alkyl radical under polymerization conditions in the presence of hydrogen and the prepolymerized catalyst system obtained in step a), in a second polymerization medium.

4. (previously presented) The process according to claim 3 wherein the second polymerization medium is liquid propylene optionally containing minor amounts of an inert hydrocarbon solvent or at least one comonomer of formula $\text{CH}_2=\text{CHZ}$.
5. (canceled)
6. (currently amended) ~~The process according to claim 1~~A process for obtaining porous propylene polymers optionally containing up to 10% by mol of derived units of at least one alpha-olefin of formula $\text{CH}_2=\text{CHZ}$ wherein Z is H or a $\text{C}_2\text{-C}_{10}$ alkyl radical, comprising the step of polymerizing, in a polymerization medium, propylene and optionally said at least one alpha-olefin, under polymerization conditions, in the presence of a catalyst system comprising at least a metallocene compound wherein:
 - a) the catalyst system is supported on an organic porous polymer; and
 - b) at least part of the polymerization reaction is carried out in the presence of hydrogen,wherein in the organic porous polymer support, a total porosity due to all pores whose diameter is comprised between $0.1\ \mu\text{m}$ ($1000\ \text{\AA}$) and $2\ \mu\text{m}$ ($20000\ \text{\AA}$) is at least 30% of a total porosity due to of all pores whose diameter is comprised between $0.02\ \mu\text{m}$ ($200\ \text{\AA}$) and $10\ \mu\text{m}$ ($100000\ \text{\AA}$).
7. (previously presented) The process according to claim 1 wherein an amount of hydrogen present during the polymerization reaction is more than 1 ppm.
8. (previously presented) The process according to claim 1 wherein the catalyst system containing the metallocene compound is obtained by reacting:
 - a) the metallocene compound;
 - b) at least an alumoxane or a compound that forms an alkylmetallocene cation;and
 - c) optionally an organo aluminum compound.
9. (previously presented) The process according to claim 8 wherein the catalyst system is supported on an organic porous polymeric support according to a process comprising the following steps:
 - (a) preparing a catalyst solution comprising the catalyst system and a solvent;
 - (b) introducing into a contacting vessel:

- (i) a porous support material in particle form having a total pore volume, and
 - (ii) a first volume of the catalyst solution not greater than the total pore volume of the porous support material introduced;
 - (c) discharging the material resulting from step (b) from the contacting vessel and suspending it in an inert gas flow, under such conditions that the solvent evaporates; and
 - (d) reintroducing at least part of the material resulting from step (c) into the contacting vessel together with a second volume of the catalyst solution not greater than the total pore volume of the reintroduced material.
10. (previously presented) The process according to claim 1 wherein the metallocene compounds belong to formula (I):



wherein

M is a transition metal belonging to group 4, 5 or to the lanthanide or actinide groups of the Periodic Table of the Elements;

the substituents X, equal to or different from each other, are monoanionic sigma ligands selected from the group consisting of hydrogen, halogen, R^6 , OR^6 , $OCOR^6$, SR^6 , NR^6_2 and PR^6_2 , wherein R^6 is a linear or branched, saturated or unsaturated C_1 - C_{20} alkyl, C_3 - C_{20} cycloalkyl, C_6 - C_{20} aryl, C_7 - C_{20} alkylaryl or C_7 - C_{20} arylalkyl group, optionally containing at least one Si and Ge atom;

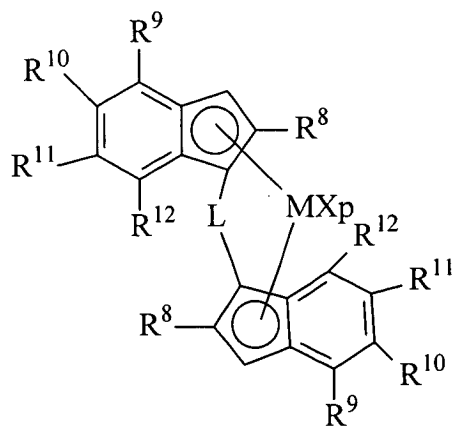
p is an integer equal to the oxidation state of the metal M minus 2;

L is a divalent bridging group selected from C_1 - C_{20} alkylidene, C_3 - C_{20}

cycloalkylidene, C₆-C₂₀ arylidene, C₇-C₂₀ alkylarylidene, or C₇-C₂₀ arylalkylidene radicals optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and silylidene radical containing up to 5 silicon atoms;

R¹, R², R³ and R⁴, equal to or different from each other, are hydrogen atoms, or linear or branched, saturated or unsaturated C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl, C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radicals, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; or two adjacent R¹, R², R³ and R⁴ form at least one 3-7 membered ring optionally containing heteroatoms belonging to groups 13-17 of the periodic table; said rings can be substituted by at least one hydrocarbon radical containing from 1 to 20 carbon atoms ring optionally containing heteroatoms belonging to groups 13-17 of the periodic table.

11. (previously presented) The process according to claim 10 wherein the metallocene compounds belong to formula (II):



(II)

wherein

R⁸, equal to or different from each other, are linear or branched, saturated or unsaturated C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl, C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radicals, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

R⁹, R¹⁰, R¹¹ and R¹², equal to or different from each other, are hydrogen atoms, linear or branched, saturated or unsaturated C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl,

C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radicals, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; or they can join to form a condensed 4-7 membered ring.

12. (previously presented) A propylene polymer optionally containing up to 10% by mol of derived units of at least one alpha-olefin of formula CH₂=CHZ wherein Z is H or a C₂-C₁₀ alkyl radical having the following features:
 - (i) a melting point >100°C;
 - (ii) a total porosity expressed as percentage of voids %V/V₁ >15; and
 - (iii) a molecular weight distribution Mw/Mn<4.
13. (new) The process of claim 6 wherein the total porosity due to all pores whose diameter is comprised between 0.1 μm (1000 Å) and 2 μm (20000 Å) is at least 40% of a total porosity due to of all pores whose diameter is comprised between 0.02 μm (200 Å) and 10 μm (100000 Å).
14. (new) The process of claim 6 wherein the total porosity due to all pores whose diameter is comprised between 0.1 μm (1000 Å) and 2 μm (20000 Å) is at least 50% of a total porosity due to of all pores whose diameter is comprised between 0.02 μm (200 Å) and 10 μm (100000 Å).